



**33<sup>rd</sup> Annual  
USN-USMC Spectrum Management Conference  
San Diego, CA  
27 Feb - 2 March 2012**



# **Spectrum Certification Update/Status**

**Distribution A: Approved for Public Release**

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29 Feb 2012**

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# Agenda

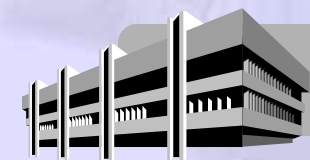


- Navy Spectrum Supportability Process Effective April 2011
- NMSC Equipment Spectrum Certification Process Manager (ESC PM)
- Critical Data Required in NMSC ESC PM
- Statistics of Spectrum Certification Requests
- Spectrum Certification Checklist
- Host Nation Coordination Requests (HNCRs)
- MCEB Equipment Frequency Allocation Guidance Page
- Processing Delay
- Classified J-12s
- Challenges
- Impacts to Training/Operational Requirements
- NMSC Engineering Team Points of Contact

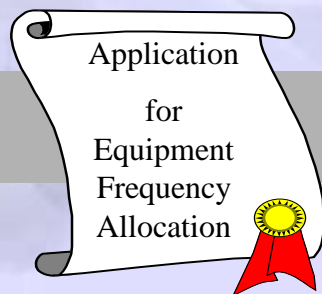


# Navy Spectrum Supportability Process

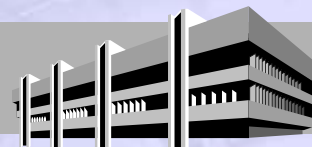
## Effective April 2011



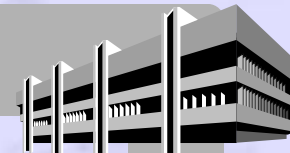
Customer/Program  
Office/Requestor



Application  
for  
Equipment  
Frequency  
Allocation

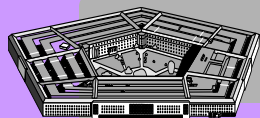


SYSCOM s



CNO/ NMSC

Unclassified – Via NMSC Equipment Spectrum  
Certification Process Manager  
Classified – Via SIPRNET email



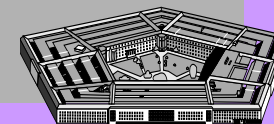
MCEB ESG PWG

NMSC Prepares  
Coordination Package(s)

Joint Staff/COCOMs  
Host Nation Approval  
(SCS format)

NTIA/SPS  
US&P Approval  
(EL-CID format)

Federal Agency  
Coordination  
FAA/FCC/etc  
(as required)

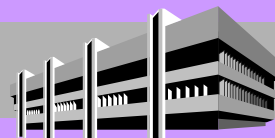


MCEB ESG PWG

Military Communications Electronics Board  
Equipment Spectrum Guidance  
Permanent Working Group



J-12  
MCEB  
Guidance



Customer/Program  
Office/Requestor


*Frequency Proposals*  
(reference a SPS submission number for  
uncertified systems, or a SPS cert number and  
a J-12 for certified systems)





# NMSC Equipment Spectrum Certification Process Manager (ESC PM)



**AKO** ARMY KNOWLEDGE ONLINE

EmailFilesDiscussGroupsIMFormsVideoPeopleHelpLogout

HomeMy AccountFavoritesQuick LinksSelf Service

Search...AKO ContentSearch

NMSC ESC Process ManagerRemove from FavoritesOptions

**ESC Help**

The following links will help you understand the Equipment Spectrum Certification (ESC) process and this site:

[How Do I...](#)

[ESC PM Introduction](#)

[ESC Task Cheat Sheet](#)

[ESC Task Descriptions](#)

[EL-CID](#)

[ESC Editor](#)

[SYSCOM Lead Reference](#)

**New Request**





Begin

Click the Begin button to start a request

**Process Manager Page Links**

Process Manager HomeManagement ReportsAdditional ReportsAll Data ReportJoint ESC Requests


**Version 1.0**

**Navy / Marine Corps****Equipment Spectrum Certification Process Manager**

**My Tasks**

The tasks below have been assigned to you. To complete a task, click on the task name, and then follow the instructions on the task form. If you are not prepared to complete the task, close the task by clicking on the "X" in the upper right corner of the form.

Tasks that have not been accepted are listed in **bold** text and have the status of "Assigned". Tasks that have been accepted, but not completed, are listed in plain text and have the status of "Accepted". Once a task has been completed, it will no longer appear in the list below.

Click on the Refresh button  to see the latest tasks.

Priority: Asc DescStatus: Active InactiveDeadline: Asc Desc

<https://www.us.army.mil/suite/designer>



# Planning Information Screen in NMSC ESC PM



Save Reassign

Update Planning Information (ESC) - MANUFACTURER \_ MODEL NAME OR NUMBER \_ DESCRIPTION

withrds bpsc-nsrns assigned this task to you on 25 Feb 2012 at 18:07 GMT

Show task info

Update planning information

Changes to these values will be reflected in future tasks and in reports displaying this data

Application Title: MANUFACTURER \_ MODEL NAME OR NUMBER \_ DESCRIPTION  
Routing Number: RS2012-US89  
Stage: 4  
Classification: U  
Request Type: ESC  
JIP 12 Number: Not Assigned  
Host Nation Coordination Request Number(s): N/A

\* Contingency ☒ Yes  
☐ No  
Is there an immediate need for this equipment to support a wartime effort or domestic emergency?

\* Exercise ☒ Yes  
☐ No  
Will the equipment be used for a military exercise?

Exercise Name: BPU TRAINING

Exercise Date: 1/1/2015  
Provide the date the exercise is scheduled to begin

Test Date: 1/1/2013  
Specify when testing with radio frequencies is scheduled to begin

Operational Date: 1/1/2014  
Specify when the system is scheduled to become operational

\* Is this an ACAT program? ☒ Yes  
☐ No  
Is this an Acquisition Category (ACAT) program, as defined by DOD 5000.02?

\* Milestone A: 1/1/2010  
The date Milestone A is scheduled to be achieved (or was achieved)

\* Milestone B: 1/1/2013  
The date Milestone B is scheduled to be achieved (or was achieved)

\* Milestone C: 1/1/2014  
The date Milestone C is scheduled to be achieved (or was achieved)

\* Requesting Org: ☐ MARCORSYS/COM  
☐ NAVAR  
☐ NAVSEA  
☐ SPAWAR  
☒ Other

\* NMSC

Program: PLATFORM NAME, PMA, PED, PMW  
Provide the name of the government program (e.g., SPAWAR or JTRS) obtaining the equipment

Locations: FT MEADE, MD  
The first location the equipment will require radio frequencies. This will be the contingency, test/eval, operational, or test location

\* Category: ACAT1

Milestone Decision Authority (MDA) Government Contact

Name: MDA CONTACT

Organization: MDA ORGANIZATION

Email or Phone: MDA EMAIL OR PHONE

OK



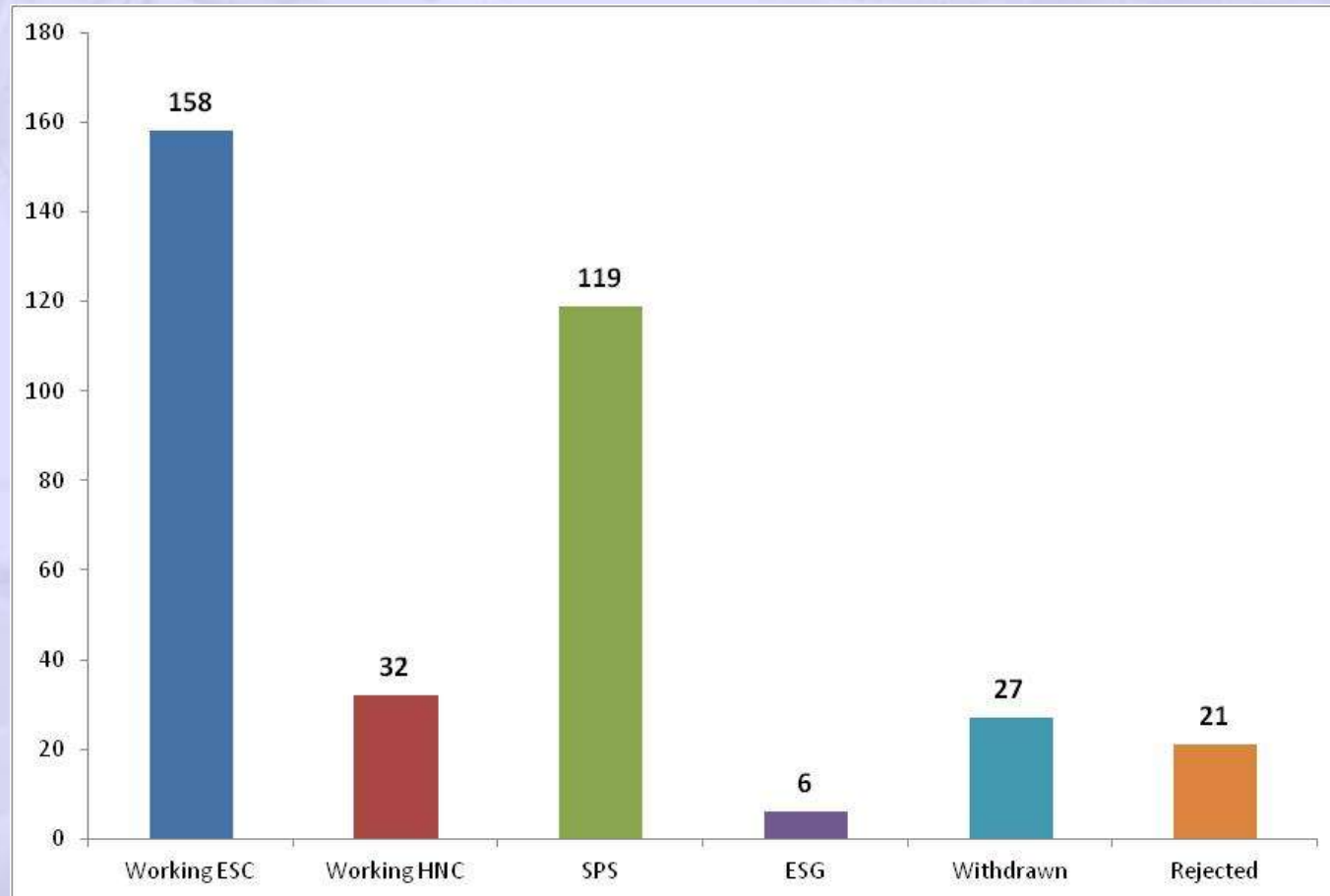
# Critical Data Required in NMSC ESC PM



- Planning Information
  - Program, ACAT Program number and Milestone A/B/C date
    - Platform/System Type vice PMA/PMS/PMW number
    - High priority processing
    - Will be monitored to obtain spectrum certification for all systems of the program in a timely manner
    - Used for statistics report to Fleet Forces Command (FFC N6)
  - Exercise/Test/Operational Date – used for processing prioritization
    - Priority 1: within 3 months
    - Priority 2: within 6 months
    - Priority 3: within 9 months
    - Priority 4: within 12 months
  - Gov't POC and Primary POC in NMSC ESC PM
    - Primary POC should be a technical POC



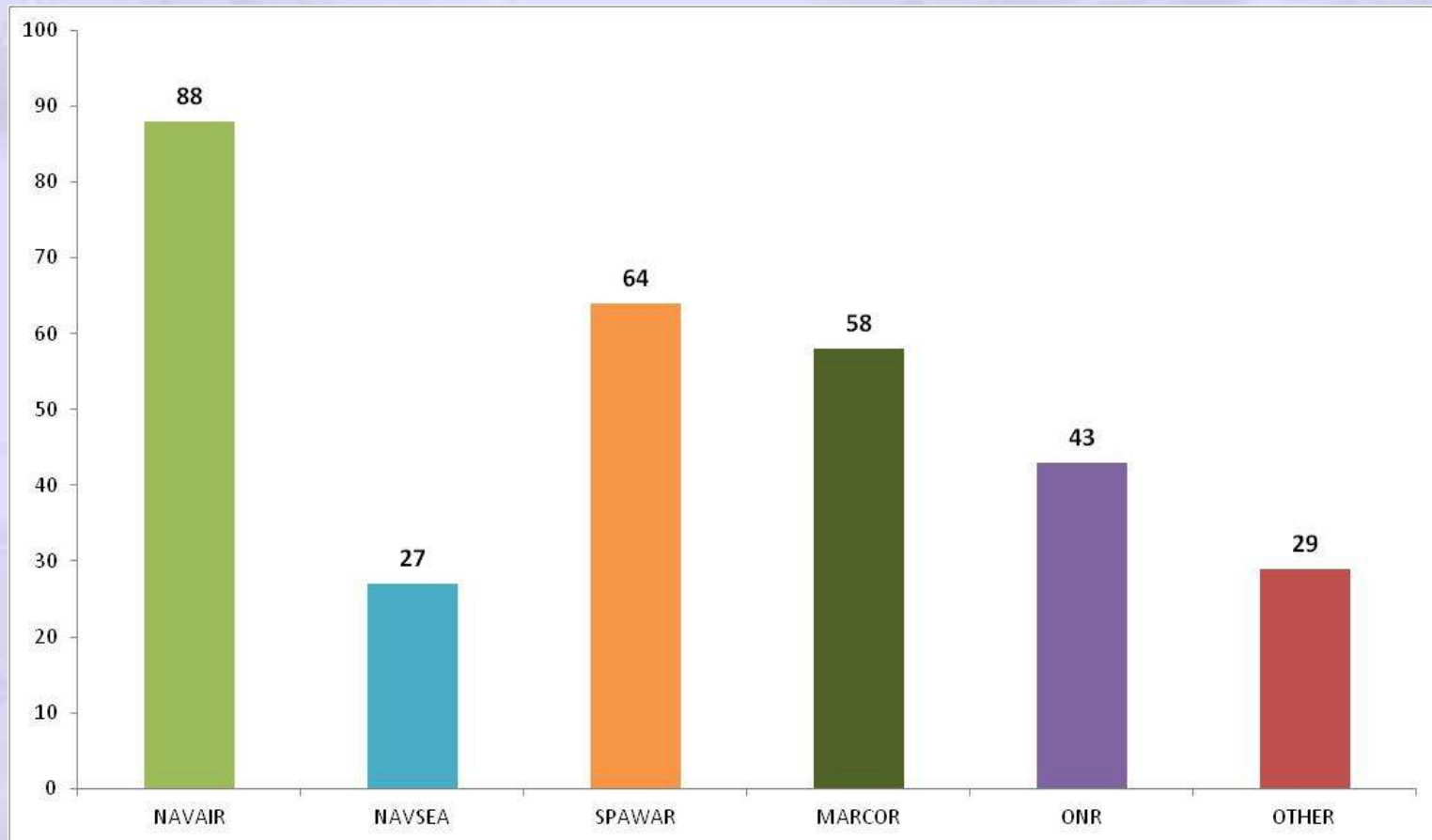
# Status Statistics of Spectrum Certification Requests







# Statistics of Spectrum Certification Requests by SYSCOMs





# Spectrum Certification Checklist



- Operating frequency band(s) is IAW Table of Frequency Allocation in Chapter 4 of NTIA Manual
- Emission bandwidth is IAW NTIA Manual and MCEB UHF Channel Plans
- Additional data requirement is provided for IFF, Link 16, satellite, trunking systems
- Project Manager/Engineer in EL-CID file must be government personnel
- Necessary bandwidth must be less than or equal to occupied bandwidth
- Emission bandwidths at -3/-20/-40/-60 dB in EL-CID file are only half of the calculated/measured values



# Spectrum Certification Checklist (continued)



- Antenna type is consistent with antenna main beam /major sidelobe gain and beamwidth
- Before submitting to SYSCOM, Program Office is responsible for
  - Addressing any previous National Telecommunications Information Administration (NTIA) Spectrum Planning Subcommittee (SPS) certification issues captured in the MCEB Guidance page of the J-12
  - System specifications accuracy obtained from manufacturer
  - Running EL-CID Compliance Checks
  - Resolving Technical Compliance Check failures
    - Refer to specific standard in NTIA Manual
    - Identify related data fields which caused compliance check failures
    - Ensure accuracy of related data fields (i.e. measured units)
    - Verify data with manufacturer again



# Host Nation Coordination Requests (HNCRs)



- NMSC coordinate with Combatant Commanders (COCOMs) to gain spectrum supportability (SS) from hosting countries via Host Nation Spectrum Worldwide Database Online (HNSWDO) in parallel with processing stage 3 or 4 spectrum certification
- Status and SS comments are available in HNSWDO
- NMCSO (Bahrain, Far East, Naples) submit frequency proposals to COCOMs or hosting country
- Application for Equipment Frequency Allocation with Foreign Coordination Information page in SCS format (DD1494)
- Foreign Disclosure Letter
  - Release all of data or only specified data fields in DD1494
  - Specify every intended hosting country
  - Intended deployment in any one of 6 Gulf Cooperative Countries (GCC): Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
    - Data should be releasable to all 6 GCC countries
  - Japan & Korea: specify base/training facilities





# MCEB Equipment Frequency Allocation Guidance Page



- Section 2 - Approved Operating Characteristics
  - Frequency bands, Emission designator, Power, Service Type, Operating Location (foreign nations are not added until spectrum supportability (SS) comments are received prior Jan 09); effective Feb 09, SS comments are documented in HNSWDO)
- Section 3 – MCEB Guidance
  - Non-compliance w/ NTIA Standards need to be addressed for subsequent system review (i.e. next stage, or revised request to add operating location/TX/RX/antenna)
  - Frequency assignments should be IAW NTIA or MCEB Channel Plan
  - NTIA SPS recommendations
- Referenced NTIA Spectrum Cert, IRAC/SPS Doc. No.
  - Not listed if it was not coordinated with NTIA SPS





# Processing Delay

- NMSC technical questions/comments will be automatically sent to requestor's AKO emails
  - Requestor needs to auto-forward AKO emails in NMSC ESC PM to their regular work emails
  - Program Office needs to respond within 30 days, otherwise, NMSC rejects request due to insufficient data for processing
- Data consistency
- Project Manager/Engineer doesn't review the technical data in EL-CID file to ensure accuracy before submission to SYSCOM and NMSC
- Project Manager/Engineer, or contractor supporting Program Office doesn't review MCEB Guidance page of the J-12 to address technical issues from previous NTIA SPS certification
- Contractor supporting program office and manufacturer don't have access to classified network computer and unable to respond to NMSC in a timely manner



# Classified J-12s



- Per Presidential Executive Order 13256 signed in Dec 2009, Security Classification Guide is required to be reviewed and updated every 5 years or as necessary
- NMSC identified 200+ classified Navy systems in Spectrum Certification System (SCS) Archives Database with outdated downgrading instructions
- NMSC could not identify program office for legacy systems (with J-12 numbered below 5000) as that data was not required in the 60-90's
- NMSC forwarded the list to four SYSCOMS to update downgrading instructions
- Affect 5-year review of frequency assignments
- No renewal of frequency assignments until after submission of replaced application with updated downgrading instruction to NTIA SPS



# Challenges



- Lack of accurate technical data to prepare spectrum certification submission to NTIA SPS
- Platform integration test schedule is not aligned with equipment acquisition schedule
- No update of equipment spectrum certification for platform integration of new configuration
- Unexpected additional test(s) are required for DoD AIMS box/platform level certification for Identification Friend or Foe (IFF) systems
- All possible test locations were not in EL-CID file
- NTIA spectrum certification backlog



# Impacts to Support Training/Operational Requirements



- No spectrum certification coordination with NMSC
  - New capabilities on operational platform
  - System development when Program Office receives RDT&E funding
- Fleet users assume
  - Every RF system on an operational platform is already certified and approved to radiate
  - No operational restrictions nor expiration timeline for certified RF component using improper frequency bands





# Impacts to Support Training/Operational Requirements (continued)



- Navy Global Hawk or BAMS-D
  - Request certification for Sierra Nevada DGPS Instrument Landing system for another year extension until 31 Jan 2013 to complete flight testing of new migrated system to UHF band
- Predator training for Navy Post Graduate School at Pt. Mugu, CA
  - Data link in 5 GHz band is not IAW Table of Frequency Allocation
  - Requires FAA approved Certificate of Authority (COA) to fly in the national airspace during transit to a restricted/warning airspace
  - Migration to another proper allocated frequency band
    - Aircraft or ground stations procured after December 2014
    - New assignments outside of Restricted and/or Warning airspace shall not be authorized after December 2016
    - All use outside Restricted and Warning Area airspace cease after December 2018





# NMSC Engineering Team Points of Contact



Manager: Thu Luu, 301-225-3838, Thu.A.Luu@navy.mil

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Anthony Yoe, 301-225-3846, Anthony.Yoe.ctr@navy.mil



# QUESTIONS ?

**Mrs. Thu Luu**  
**Engineering Team Manager**  
**Thu.A.Luu@navy.mil**  
**(301) 225-3838, DSN 375**



# BACKUP ADDITIONAL INFORMATION



- Application for Equipment Frequency Allocation Submission Lead Time Guidelines
- What System Requires Spectrum Certification?
- Access to NMSC ESC PM
- SYSCOMs Contacts in NMSC ESC PM
- Detailed Status for ESC and HNC Requests in NMSC ESC PM
- Operating Frequency Bands
- Frequency Channel Plans
- Additional Data Requirements for Specific Systems
- Identification Friend or Foe (IFF)
- Commercial Off-The-Shelf (COTS)
- ECM, Jammer, RCIED, CREW
- National Spectrum Management Representation



# Application for Equipment Frequency Allocation Submission Lead Time Guidelines



Acquisition Stage	Lead Times	
	Space Systems	Other Systems
<b>Planning or Conceptual (Stage 1)</b> <i>(Radiation not permitted)</i>	Not earlier than seven years before satellite launch	As part of any Capability based AoA and/or pre-MS A activity
<b>Experimental (Stage 2)</b>	No later than four years before satellite launch	Not less than one year before procuring pre-systems acquisition equipment, or MS B
<b>Developmental (Stage 3)</b>	No later than three years before satellite launch	Not less than one year before LRIP, or award of a developmental contract, or MS C
<b>Operational (Stage 4)</b>	No later than two years before satellite launch	At least six months before IOC for all equipment if there are only minor changes from previous stage submissions; one year prior for all other equipment with significant changes, or was not filed previously





# What System Requires Spectrum Certification?



- Communications equipment, radars, transmitters, receivers
- Electronic Warfare Systems (e. g., Counter IED jammers), simulators
- Equipment using civilian bands, off-the-shelf systems
- Equipment bought from foreign nation
- New systems in a band already used for similar systems
- Classified systems
- Modified versions of previously approved equipment
- Systems already used by the Army or Air Force
- Systems not planned for operational use
- Systems to be used at sea only
- Existing systems without spectrum certification
- Leased equipment, test equipment
- Low Power (NTIA Manual Annex K/ FCC Part 15 equipment)





## Access to NMSC ESC PM



- Program Offices and spectrum certification submitters need to obtain a user account with AKO/DKO
- Provide AKO/DKO username to their respective SYSCOM POC to be added to NMSC ESC PM access list
- Contractors supporting program offices and SYSCOMs need to be sponsored by their government representatives in order to get an AKO/DKO user account
- Submitters that are not associated with NAVAIR, NAVSEA, SPAWAR or MARCORSYSCOM (i.e. "Other") should provide their AKO/DKO username directly to Thu Luu, NMSC Engineering Team Manager and Ms. Sharon Waranius, Alion Science and Technology, 240-646-3577, [swaranius@alionscience.com](mailto:swaranius@alionscience.com) for access



## Access to NMSC ESC PM (Continued)



- Questions about your requests or ESC process should be addressed to
  - NMSC Office Email: [Navyspectrum.fct@navy.mil](mailto:Navyspectrum.fct@navy.mil), or
  - Thu Luu, [Thu.A.Luu@navy.mil](mailto:Thu.A.Luu@navy.mil), 301-225-3838, DSN 375-3838
- Help Desk Contact
  - [stepstone-helpdesk@alionscience.com](mailto:stepstone-helpdesk@alionscience.com) , or (240) 646-3543



# SYSCOMs Contacts in NMSC ESC PM



- NAVAIR
  - Michael Squires, michael.squires@navy.mil, 301-342-1660
  - Ted Rothman, theodore.rothman@navy.mil, 301-342-9223
  - John Shultz, john.schultz@navy.mil, 301-757-2456
  - Pam Crispell, pamelacrispell@navy.mil, 301-342-8629
- NAVSEA
  - J. Don Pierce, james.d.pierce1@navy.mil, 202-781-4214
  - Robert Sweeney, robert.c.sweeney@navy.mil, 202-781-3523
  - Will Miles, willie.miles@navy.mil, 757-541-6792



# SYSCOMs Contacts in NMSC ESC PM (continued)



- MARCORSYSCOM:
  - Spectrum Office Inbox: [spectrumcertmcsc@usmc.mil](mailto:spectrumcertmcsc@usmc.mil)
  - GySgt Brian Bond, [brian.bond@usmc.mil](mailto:brian.bond@usmc.mil), 703-432-4441, (DSN 312-378-4441)
  - CWO3 Rob Hamlett, [robert.hamlett@usmc.mil](mailto:robert.hamlett@usmc.mil), 703-432-4473, (DSN 312-378-4473)
- SPAWAR:
  - Dave Hilton, [david.r.hilton@navy.mil](mailto:david.r.hilton@navy.mil), 619-553-2666
  - Chris Dilay, [chris.dilay@navy.mil](mailto:chris.dilay@navy.mil), 619-553-3794





# Detailed Status for ESC Requests in NMSC ESC PM



- SMO Inbox
- SMO Review
- SPS Preparation – SPS submission deadline is on first Monday of the month
- SPS Review
  - An Adobe Acrobat file of EL-CID application with SPS submission number for reference in frequency proposal will be placed in the Collaboration Folder
- SPS Approval
- ESG Preparation
- ESG Review – ESG meetings are on 1<sup>st</sup> and 3<sup>rd</sup> Wed of the month
- SMO Finish





# Detailed Status for Host Nation Coordination Requests in NMSC ESC PM



- SMO Inbox
- SMO Review
- HNC Preparation
  - Legacy approved systems will be processed immediately
  - New system is pending on SMO Engineer Review for data accuracy
- HNC Review – Check HNSWDO for host nation approval



# Operating Frequency Bands

- Table of Frequency Allocation
  - NTIA Manual, Chapter 4, Section 4.1  
[http://www.ntia.doc.gov/files/ntia/publications/4b\\_5\\_11.pdf](http://www.ntia.doc.gov/files/ntia/publications/4b_5_11.pdf)
    - National
      - Federal vs. Non-Federal
      - Gov't and US Footnotes
    - International
      - Military vs. Commercial
      - Footnotes
  - Provide Technical Out-Of-Band Justification if not in compliance with Table of Frequency Allocation



# Frequency Channel Plans

- NTIA Frequency Channel Plans
  - NTIA Manual, Chapter 4, Section 4.3
  - Section 4.3.18, 4400-4940 MHz Channel Plan
  - Section 4.3.19, 7-8 GHz Channel Plan
- Military Communications Electronics Board (MCEB)
  - UHF (225-399.9 MHz), MCEB-M-001-04, dated 1 April 2004
    - 12.5 /25 KHz channels
    - Wideband emission up to 1.2 MHz bandwidth only available in 230-395 MHz band with some sub-bands are reserved for primary use to support Data Link 4A requirements
    - MCEB Equipment Spectrum Guidance Permanent Working Group (ESG PWG) might require electromagnetic compatibility (EMC) analysis
    - MCEB Guidance: Very difficult to obtain frequency assignments



# Additional Data Requirements for Specific Systems



- Commercial SATCOM Lease: USN/USMC owned earth terminals need Application for Equipment Frequency Allocation
- Identification Friend or Foe (IFF)/Traffic Collision Avoidance System (TCAS): Program Office is responsible to obtain DoD AIMS Certification in a timely manner with the program milestone
  - Box Level: Stage 3
  - Platform: Stage 4
- JTIDS/MIDS: DoD 4650.1-R1 Link 16 EMC Features Certification Process & Requirements
- Satellite: Attachment 2, Power Flux Density Analysis, ITU Registration
- Trunking System: Signal Coverage Plot





# Identification Friend or Foe (IFF)



- Early coordination with NMSC on system design
  - Interrogation Scheme
  - Antenna Side Lobe Suppression
  - Transmit Power
  - Platform Integration and Interrogation Controls
  - Pulse Repetition Rate (PRR)
    - Issue if PRR is controlled by antenna rotation speed
- Within 100 nm of US&P Coast, no 360-degrees operation for Mode 4
- Commercial IFF transponder certified by FAA Technical Standard Order
  - Equivalent to DoD AIMS Box Level Certification
  - Requires DoD AIMS Platform Level Certification



# Commercial Off-The-Shelf (COTS)



- FCC Part 15 devices: non-licensed
  - Application for Equipment Frequency Allocation
    - US&P:
      - NTIA: Spectrum Certification is not required
      - Military Communications Electronics Board (MCEB) Equipment Spectrum Guidance Permanent Working Group (ESG PWG): Noted for Information & File
    - OUS&P: required for host nation coordination requests
- FCC Type Acceptance Verification
  - <http://www.fcc.gov/oet/fccid/>
- FCC Part 90 devices: licensed
  - Application for Equipment Frequency Allocation is required for spectrum certification with NTIA and MCEB ESG PWG



# ECM, Jammer, RCIED, CREW



- Electronic Countermeasure, Jammer, Counter-Radio Controlled Improvised Explosive Device (RCIED), CREW
  - Application for Equipment Frequency Allocation
    - Noted for Information & File
    - Only submitted to Military Communications Electronics Board (MCEB) Equipment Spectrum Guidance Permanent Working Group (ESG PWG)
- CJCSM 3212.2B– EA/GPS EA frequency request is required 75 days prior to testing
  - Coordination with FAA and FCC at national and/or local level is depending upon operating frequency bands, Appendix D



# National Spectrum Management Representation

